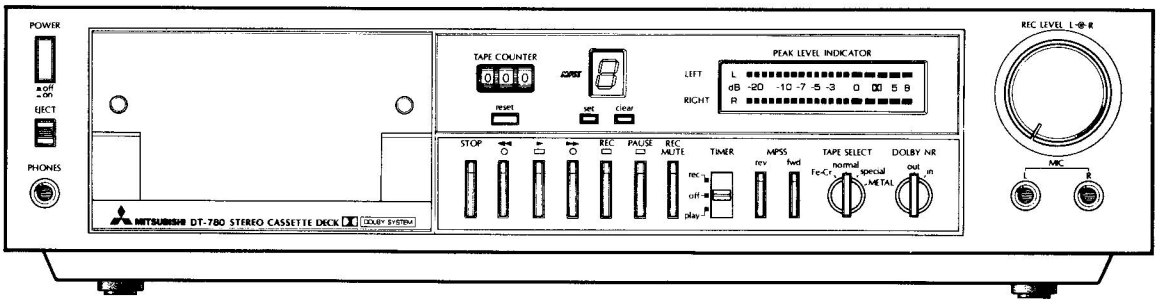
MITSUBISHI
AUDIO SYSTEMS

SERVICE MANUAL

STEREO CASSETTE DECK

MODEL DT-780



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MITSUBISHI ELECTRIC CORPORATION

SPECIFICATIONS

Type	4 track, 2 channel Stereo Cassette Decks
Motor type	
Capstan motor	DC servo motor
Reel motor	DC motor
Head material	
REC/PB head	Hard permalloy
Erase head	Ferrite
Tape speed	4.75 cm/s (1-7/8 ips)
Tape speed accuracy	±1%
Wow and flutter	0.045% Wrms
Fast forward/rewind times	85 sec. (C-60 type)
SN ratio	
(400Hz, 3% THD, Weighted, Metal tape)	
Dolby NR out	58 dB
Dolby NR in	66 dB
Frequency response	
(±3dB, record level 160 pwb/mm -30dB)	
Normal tape	40 – 14,000 Hz
Special tape	40 – 16,000 Hz
Metal tape	40 – 17,000 Hz
Fe-Cr tape	40 – 16,000 Hz
Erasure ratio (1kHz)	60 dB
Sensitivity/impedance	
Mic input	0.3 mV (2.2k ohms)
Line input	70 mV (47k ohms)
Output level	
Line output	440 mV (22k ohms load)
Headphone	0.8 mW (8 ohms load)
Power consumption	18W
Dimensions (W x H x D)	424 x 106 x 292 mm (16-11/16 x 4-11/64 x 11-1/2"

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Noise reduction system manufactured under license from Dolby Laboratories.
Specifications of this unit are subject to change without notice for improvement.

DISASSEMBLY INSTRUCTIONS

Notes:

1) Refer to the Exploded View on Page 22, 23.
2) When disassembling the set, be careful not to let any lubricant deposit on the rotary transmission sections. If any lubricant has deposited by mistake, thoroughly clean the desposited section with alcohol.
3) Use caution not to let any foreign matter deposit on the disassembled parts, especially those mechanical parts lubricated with oil, or grease.
4) In assembly, do not use screws other than those specified as it will cause cracking of molded parts, failure of fixing, or damaging of screw thread. So be sure to use only specified screws.
5) Take care not to scratch or mark the front panel or meter surfaces.
6) All mall parts such as screws and controls should be kept together in a small container so that they won't get lost.
7) Some set screws of the mechanical section are locked with screw lock paint to prevent them from loosening. When removing such screws, apply 1 or 2 drops of thinner-type solvent to the screw lock section. Wait several minutes, and after confirming that the screw lock paint has softened, unscrew the screw using a screwdriver that matches the screw head. (Since the solvent will affect the plastic sections, use caution not to let any adhere.)
9) **For assembly, reverse the order of the disassembly procedures and assembly the set properly.**

Removal of Case

1. Removal of Top Cover

To remove the top cover, undo 4 screws shown in Fig. 1, and lift the top cover by shifting it slightly backward.

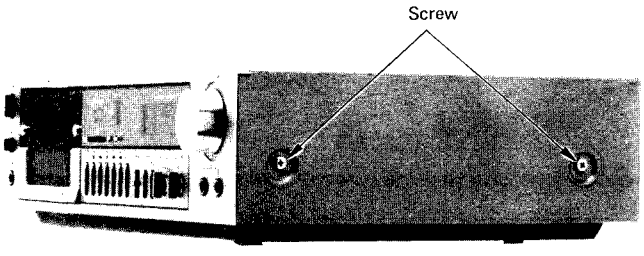


Fig. 1

2. Removal of Bottom Cover

To remove the bottom cover, undo 7 screws shown in Fig. 2.

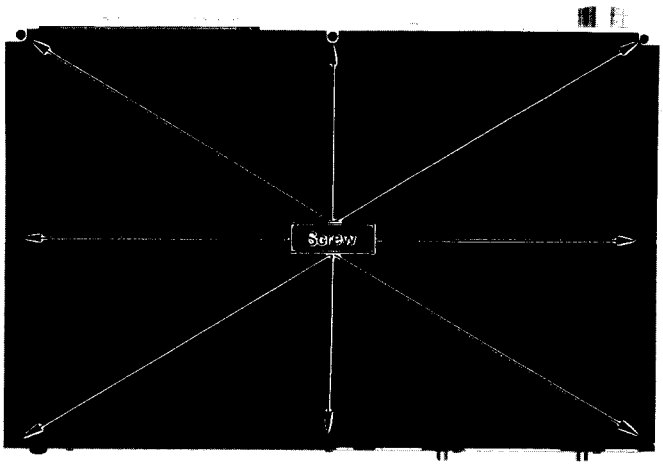


Fig. 2

3. Removal of Front Panel

1) Remove the top and bottom covers as described in procedures in 1, 2, above.
2) Pull off the control knobs of Rec Level, Dolby NR, and Tape Select switch.
3) Undo 3 screws ① shown in Fig. 3.
4) To remove the front panel, undo 3 screws ② shown in Fig. 3.
5) In this condition, the Main P.C. Board and Switch/Meter P.C. Board can be checked, and circuit components replaced if necessary.

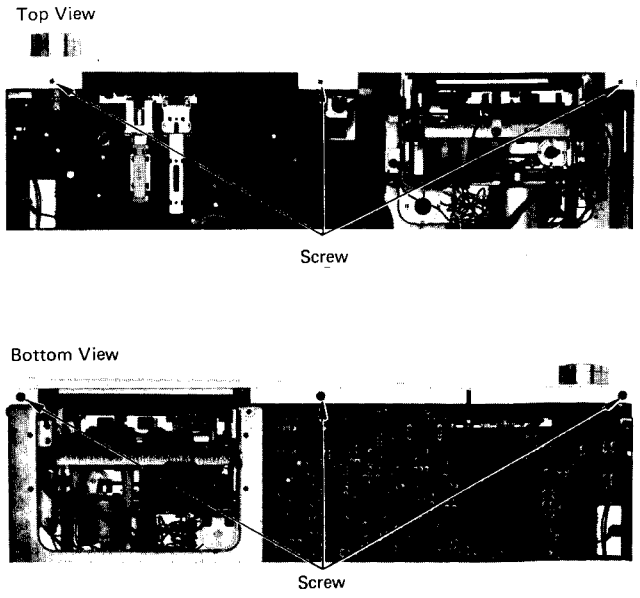


Fig. 3

Removal of Mechanism Section

1. Removal of Mechanism Assembly

1) Remove front panel as described in "Removal of Case" 1 to 3.
2) Pull off the power switch button.
3) Pull off the connectors (J105, J205, J106, J108) of the Main P.C. Board.
4) Take off the nut and also the headphone jack shown in Fig. 4.
5) Undo 5 screws shown in Fig. 4.
6) To remove the mechanism assembly, shift the mechanism backward by lifting its backside.

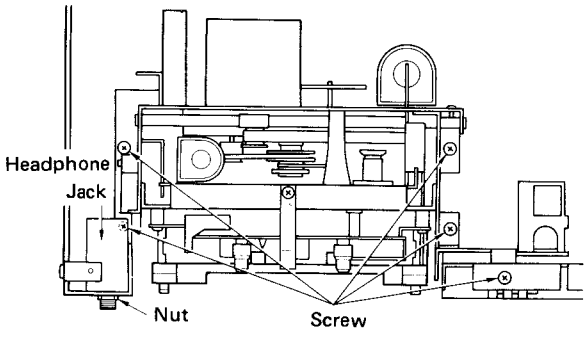


Fig. 4

2. Removal of Inter Connect P.C. Board

1) Remove the mechanism assembly as described in procedure in 1 above. Undo screws ① shown in Fig. 5, and then remove the Inter connect P.C. Board.
2) To remove the play solenoid, undo 2 screws ② shown in Fig. 5.
3) When mounting is required, refer to the "Mounting of Play Solenoid" on Page 6.

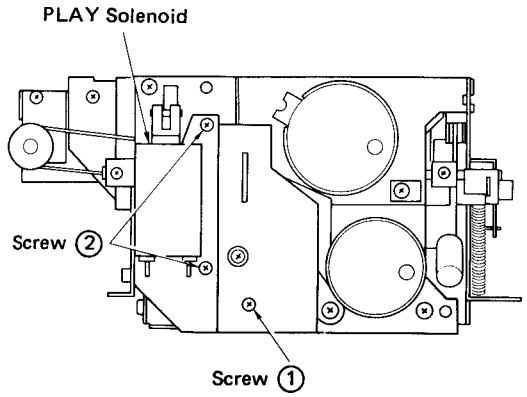


Fig. 5

3. Removal of Flywheel Holder and Flywheel

1) Remove the Inter connect P.C. Board and play solenoid as described in procedure 2 above, and then take off 2 springs at points Ⓐ and Ⓑ shown in Fig. 6.
2) To remove the flywheel, undo 2 screws ① shown in Fig. 6.
3) Take off the flywheel after disconnecting the main belt from the flywheel.

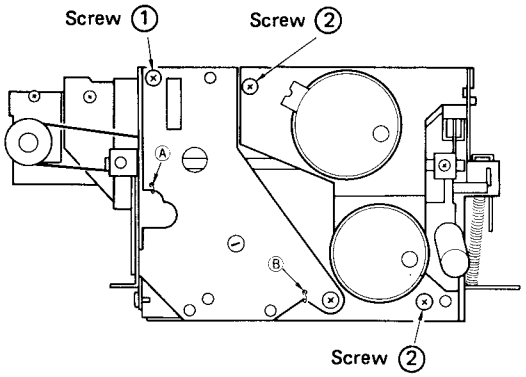


Fig. 6

4. Removal of Motor Holder

1) Remove the Inter connect P.C. Board as described in Procedure 2 above, and then take off the belt of capstan motor and reel motor.
2) To remove the motor holder, undo 2 screws ② shown in Fig. 6.
3) In this condition, FF/REW belt can be replaced.
4) When taking off the belts of capstan motor and reel motor, undo each 2 screws securing the motors.

5. Removal of Make-up Plate and Counter Belt

1) Remove the mechanism assembly as described in procedure 1 above. To remove the cassette spring, undo screw ① shown in Fig. 7.
2) To remove the make-up plate, undo 2 screws ② shown in Fig. 7.
3) In this condition, counter belt can be replaced.

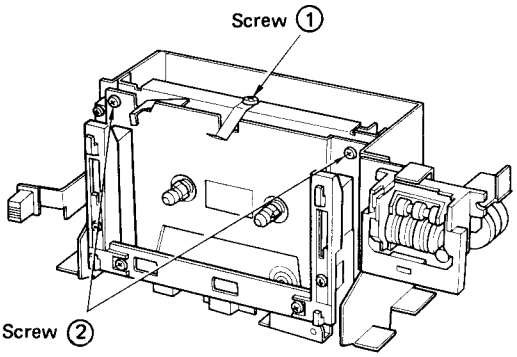


Fig. 7

6. Removal of Cassette Holder and FF/REW Solenoid

1) Following the procedures 1 to 5, remove the Inter connect P.C. Board, play solenoid, flywheel holder, motor holder, make-up plate and counter belt.
2) To remove the cassette holder lever, undo screw ① shown in Fig. 8.
3) To remove the plate (R) for the maintenance of the mechanism base, undo 2 screws ② shown in Fig. 8.

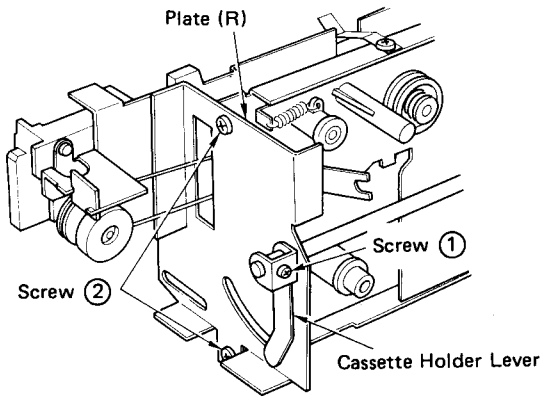


Fig. 8

4) Disconnect the spring from point Ⓐ shown in Fig. 9.
5) To remove the cassette holder, undo E-ring shown in Fig. 10.

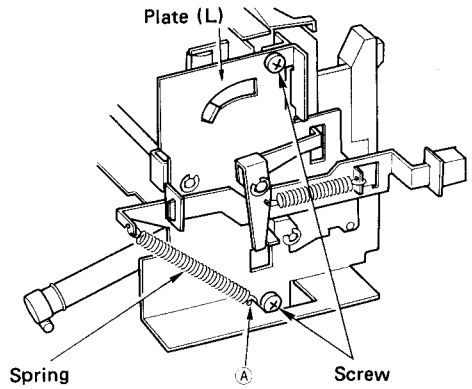


Fig. 9

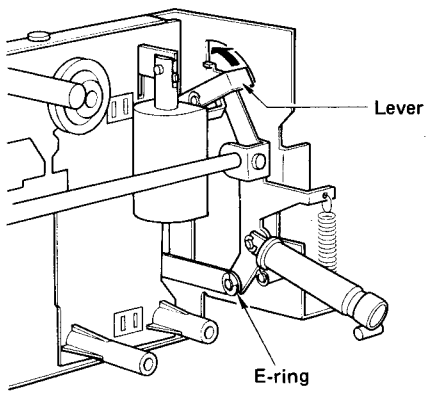


Fig. 10

6) Undo 2 screws shown in Fig. 9 and turn the lever toward the arrow, and the plate (L) for the maintenance of the mechanism base can then be taken out.
7) To remove the FF/REW Solenoid, undo 2 screws shown in Fig. 11.
8) When mounting is required, refer to the "Mounting of Play Solenoid" on Page 6.

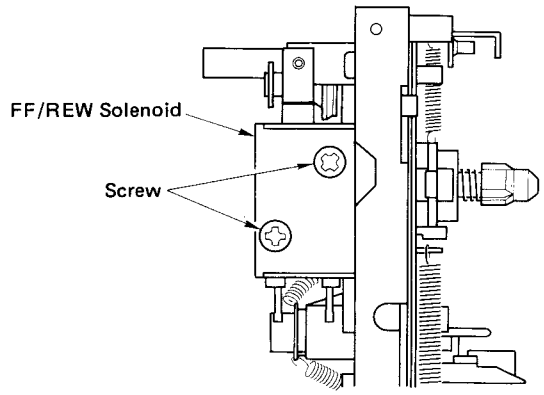


Fig. 11

MECHANICAL ADJUSTMENTS

1. Tape Speed Adjustment

1) Setting . . . . . Connect a frequency counter to the output terminals.
2) Test tape MTT-111 (3kHz)
3) Adjustment . . . . . Play the test tape, and use a minus-head screwdriver to adjust the capstan motor adjustment screw. The frequency counter should read 3000 $\pm^{10}_{0}$ Hz.

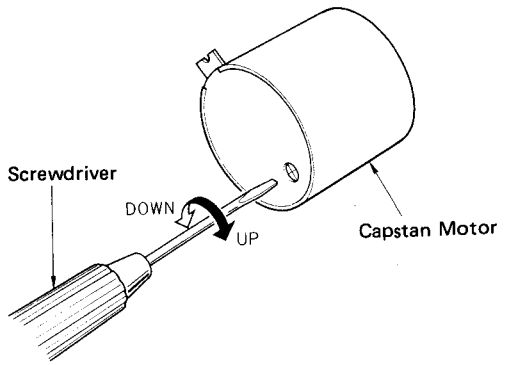


Fig. 12

2. Head Azimuth Adjustment

1) Setting . . . . . Turn the playback output level adjustment semi-fixed resistors VR102 (L) and VR202 (R) up to maximum.
2) Test tape . . . . . MTT-215C (10kHz/315Hz, −10dB, normal)
3) Adjusting point . . Head azimuth adjustment screw.
4) Adjustment . . . . . Play the test tape and adjust the azimuth adjustment screw to obtain maximum output level in both the left and right output channels.

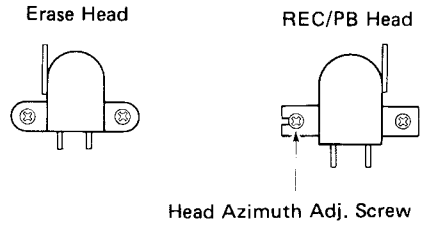
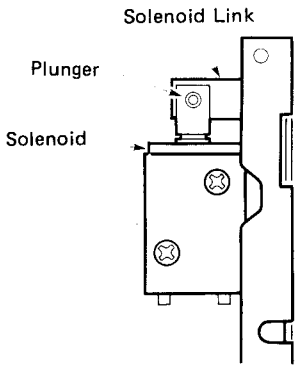


Fig. 13

3. FF/REW Solenoid (SOL-2) Mounting

1) After securing the solenoid temporarity, insert the plunger into the solenoid by hand and leave it in the pulled-in position.
2) Then secure the solenoid tightly in a position which gives a gap of 0.8 ~ 1.2mm between the brake link and the Φ3.5 boss of the intermediate pully.



* When inserting the plunger into the solenoid by hand, take due care not to touch the solenoid link.

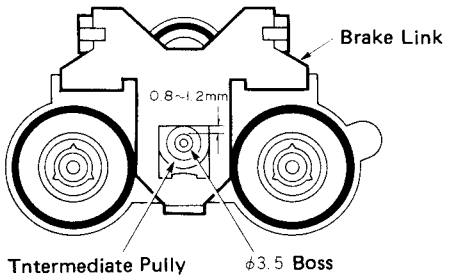
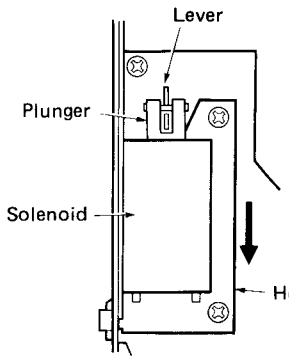


Fig. 14

4. PLAY Solenoid (SOL-1) Mounting

1) After securing the solenoid temporarity, insert the plunger into the solenoid by hand and leave it in the pulled-in position.
2) After forcing the solenoid as far as it will go in the direction of the arrow in Fig. 15, secure the solenoid tightly, and check that the head base is in contact with the stopper (pinch roller shaft).



* When inserting the plunger into the solenoid by hand, take due care not to touch the lever.

Fig. 15

5. Flywheel Thrust Play Adjustment

1) After mounting the holder in the mechanical section, adjust the flywheel thrust play to 0.1 ~ 0.3mm by the thrust play adjustment screw.
2) Since the pitch of this screw is 0.5mm, it will be displaced by 0.5mm in a single full turn.

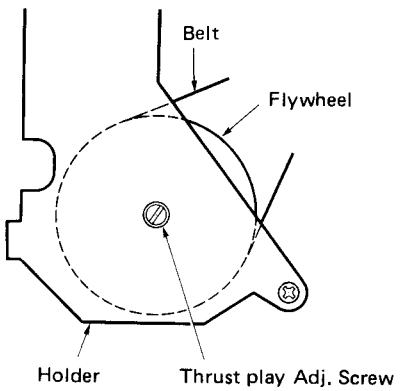
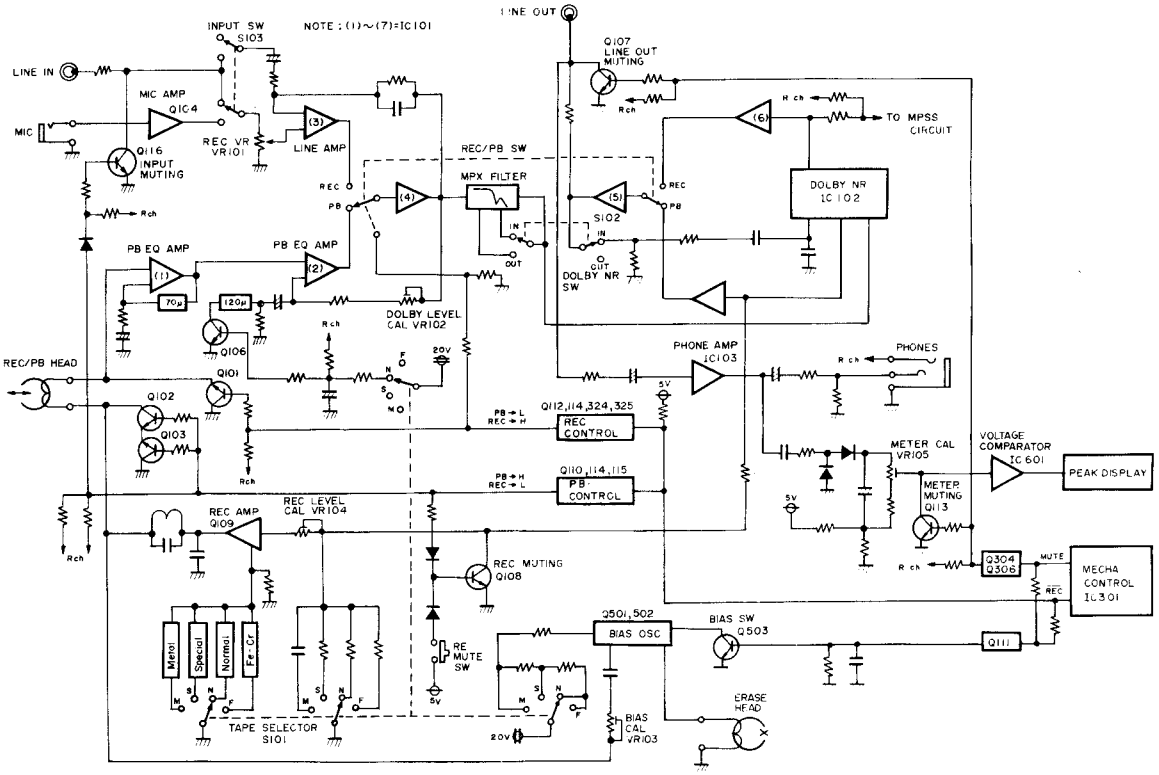
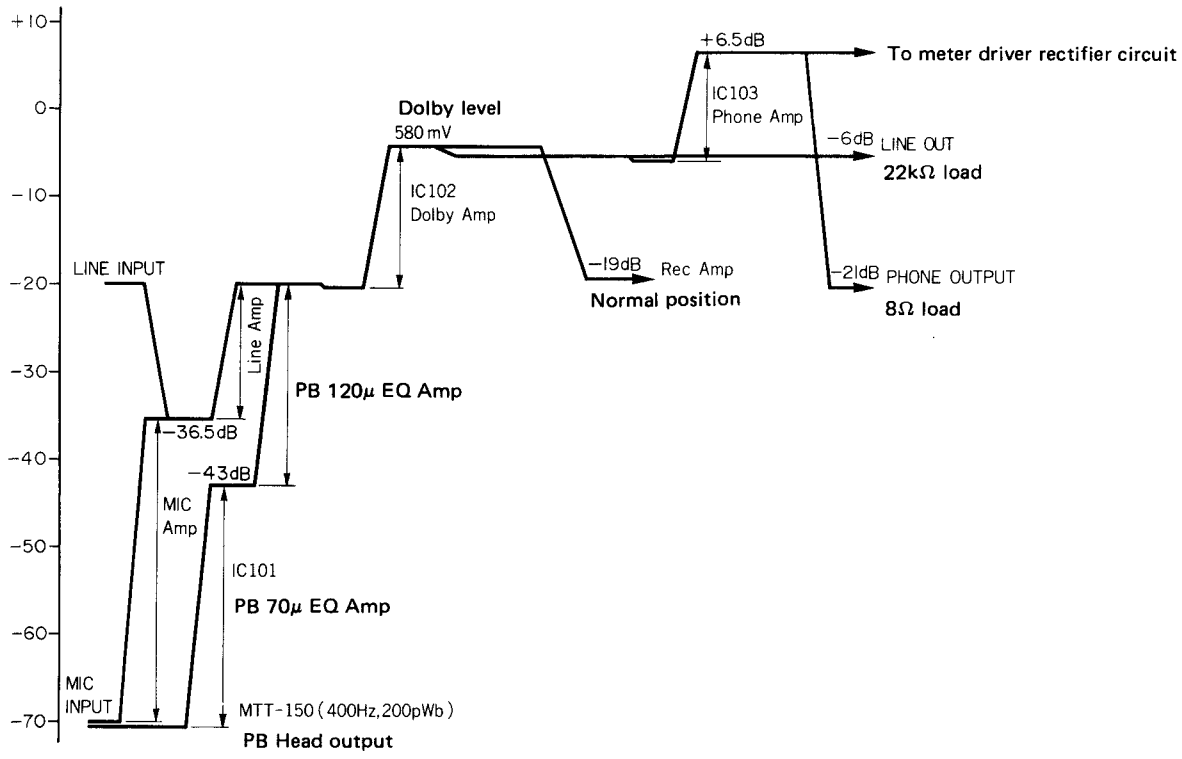


Fig. 16

BLOCK DIAGRAM



REC/PB LEVEL DIAGRAM



ELECTRICAL ADJUSTMENTS

■ **Measuring Equipment and Test Tapes**

1. Audio generator : 20Hz ~ 20kHz
2. Attenuator : 0 ~ 90dB in 0.1 or 0.5 steps
3. AC voltmeter (VTVM) : 20Hz ~ 200kHz (min.), input impedance 100kΩ min. with measuring capacity below −60dB.
4. Frequency counter
5. Oscilloscope
6. Test tapes
   - MTT-111 (3kHz)
   - MTT-215C (10kHz/314Hz, −10dB, normal)
   - MCT-400L (400Hz Dolby level)
   - MCT-606SA (blank)
7. Measuring equipment connections

* Unless otherwise specified, connect the measuring equipment to the tape deck as shown in Fig. 17.

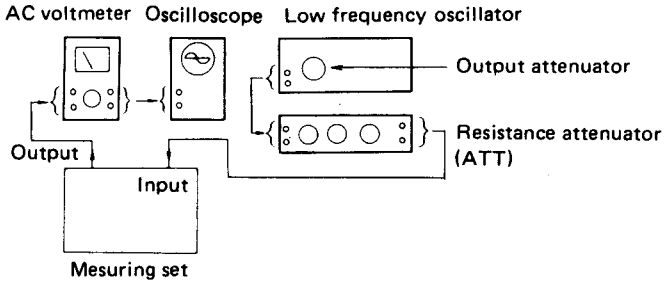
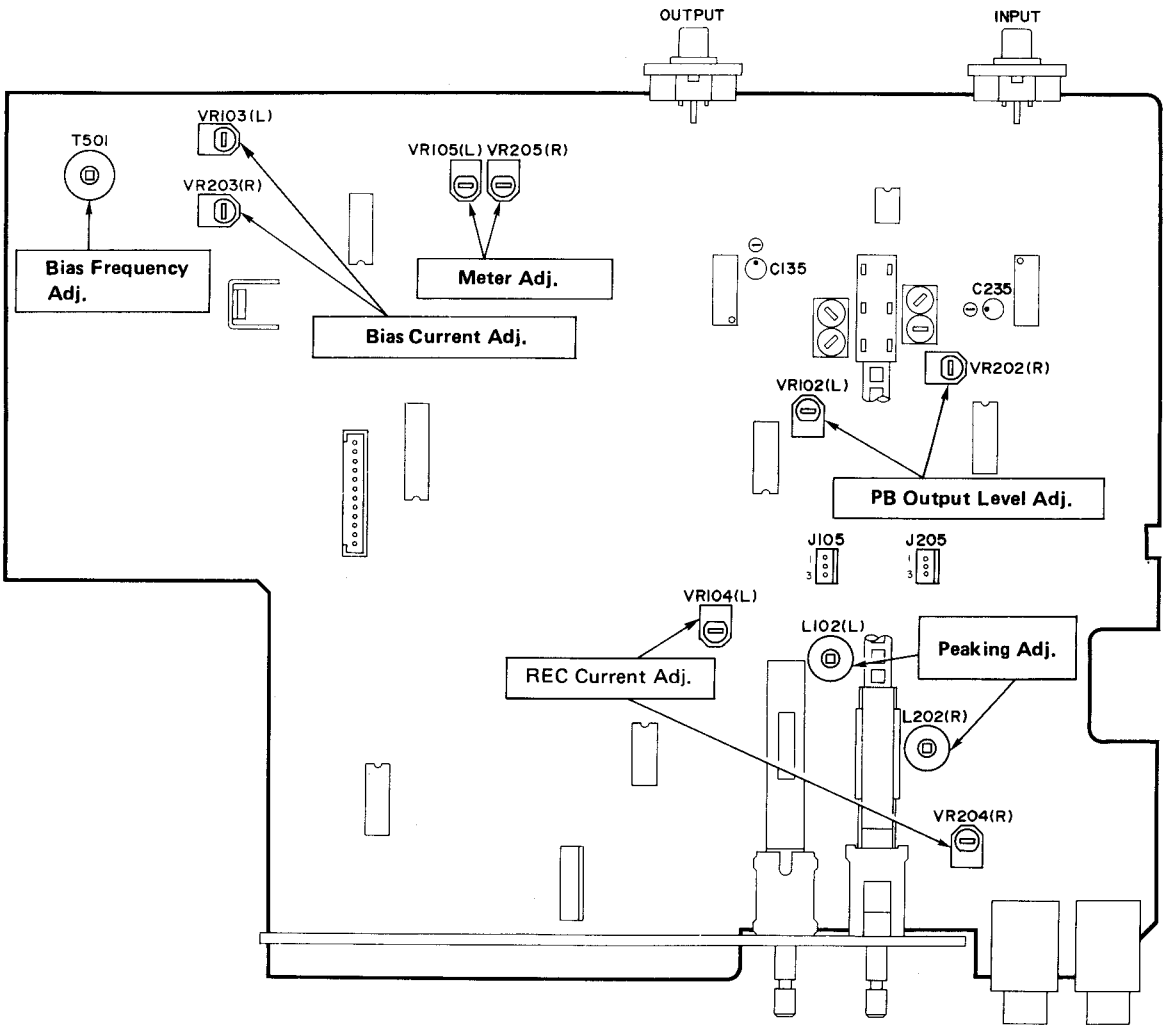


Fig. 17

1) Connect a 22kΩ load resistor, an AC voltmeter, and an oscilloscope to the output terminals of the tape deck.
2) During recording adjustments, also connect an audio generator and an attenuator to the tape deck input terminals.

ADJUSTING POINTS



Playback Adjustments

1. Playback Output Level Adjustment

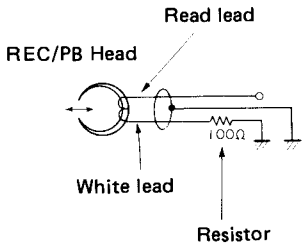
1) Test tape . . . . . MCT-400L (Dolby level)
2) Adjusting point . . VR102 (L) and VR202 (R) semi-fixed resistors
3) Check point . . . . . Minus side of the C135 (L) and C235 (R) electrolytic capacitors
4) Adjustment . . . . . Play the test tape and adjust the semi-fixed resistors to obtain a reading of 580mV ±0.25dB on the minus side of C135 and C235.

2. Meter Level Adjustment

1) Test tape . . . . . MCT-400L (Dolby level)
2) Adjusting point . . VR105(L) and VR205(R) semi-fixed resistors
3) Adjustment . . . . . Play the test tape and adjust the semi-fixed resistors so that the +3dB LED light up.

Recording Adjustments

For adjustments 1 to 4, connect a 100Ω resistor between the head terminal and the white lead leading to the REC/PB head.



* Connect a 100Ω resistor between the head terminal and the white lead during recording mode.

Fig. 18

1. Bias Frequency Adjustment

1) Setting . . . . . Connect the frequency counter across both ends of the 100Ω resistor.
2) Adjusting point . . T501
3) Adjustment . . . . . Adjust T501 until the frequency counter reads 85kHz.

* For the subsequent adjustments, switch the tape selector to the Special position.
* Performing the presetting operations 2 to 4 prior to the adjustment procedures will make the respecitive adjustments easier.

2. Bias Current Presetting

1) Setting . . . . . Connect the AC voltmeter across both ends of the 100Ω resistor, and set the tape deck to "no-signal" recording mode.
2) Adjusting point . . VR103(L) and VR203(R) semi-fixed resistors.
3) Adjustment . . . . . Adjust the semi-fixed resistors to obtain a reading of 43mV (430μA) in the AC voltmeter.

3. Recording Current Presetting

1) Setting . . . . . Set the deck to recording mode and apply a −10dB 400Hz input signal. After setting the front panel REC LEVEL controls to obtain a −7dB output at the output terminals. Then stop the bias oscillator circuit.
Connect the AC voltmeter across both ends of the 100Ω resistor.
2) Adjusting point . . VR104(L) and VR204(R) semi-fixed resistors.
3) Adjustment . . . . . Adjust the semi-fixed resistors to obtain a reading of 4.5mV (45μA) in the AC voltmeter.

4. Peaking Presetting

1) Setting . . . . . Set the deck to recording mode and apply a −10dB 400Hz input signal. After setting the front panel REC LEVEL controls to obtain a −7dB output at the output terminals. Then stop the bias oscillator circuit, and drop the input level by 10dB.
Connect the AC voltmeter across both ends of the 100Ω resistor.
2) Adjusting point . . L102(L) and L202(R) coils
3) Adjustment . . . . . Adjust the coils so as to obtain an increase of +14dB at 14kHz in respect to 400Hz.

5. Recording Current Adjustment

1) Setting . . . . . Set the tape deck to recording mode and apply a −10dB 400Hz input signal. After adjusting the REC LEVEL controls to obtain a −7dB output, drop the input level by 30dB.
2) Test tape . . . . . MCT-606SA (blank)
3) Adjusting point . . VR104(L) and VR204(R) semi-fixed resistors.
4) Adjustment . . . . . Record the 400Hz signal, and adjust the semi-fixed resistors so

that the output level obtained during playback is the same as the recording monitiring output level.

6. Bias Current Adjustment

1) Setting . . . . . Same as the setting for recording current adjustment above.
2) Test tape MCT-606SA
3) Adjusting point . . VR103(L) and VR203(R) semi-fixed resistors.
4) Adjustment . . . . . Record the 400Hz and 6.3kHz signals, and adjust the semi-fixed resistors to obtain a level difference of $\pm^{0.5}_{0}$ dB at 6.3kHz in respect to 400Hz during playback.

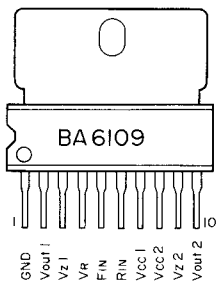
7. Peaking Adjustment

1) Setting . . . . . Same as the setting for recording current adjustment above.
2) Test tape MCT-606SA
3) Adjusting point . . L102(L) and L202(R) coils
4) Adjustment . . . . . Record the 400Hz and 15kHz signals, and adjust the coils to obtain alevel difference of $\pm^{0.5}_{0}$dB at 15kHz in respect to 400Hz during playback.

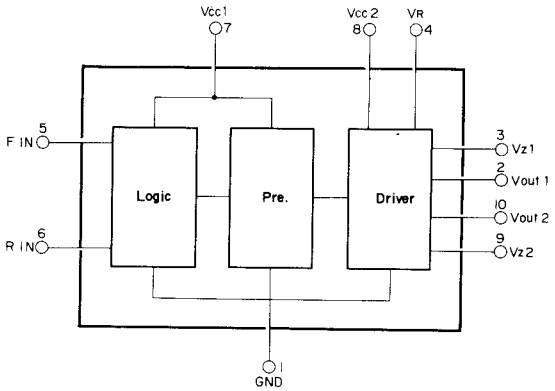
EQUIVALENT CIRCUITS WITHIN THE IC

BA6109

Terminal Connections



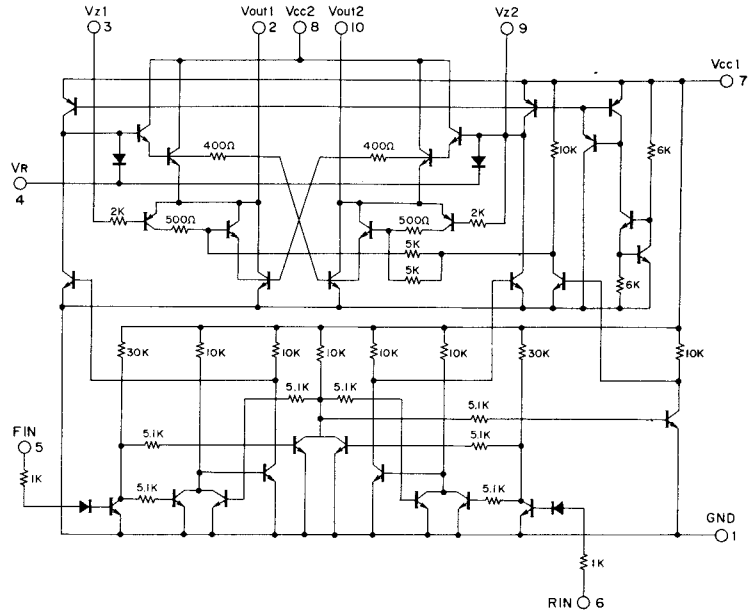
Circuit Construction



Input/Output Truth Table

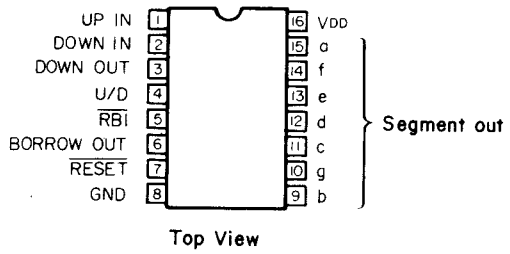
F IN	R IN	Vout 1	Vout 2
H	H	L	L
L	H	L	H
H	L	H	L
L	L	OPEN	OPEN

BA6109 Internal Equivalent Circuit



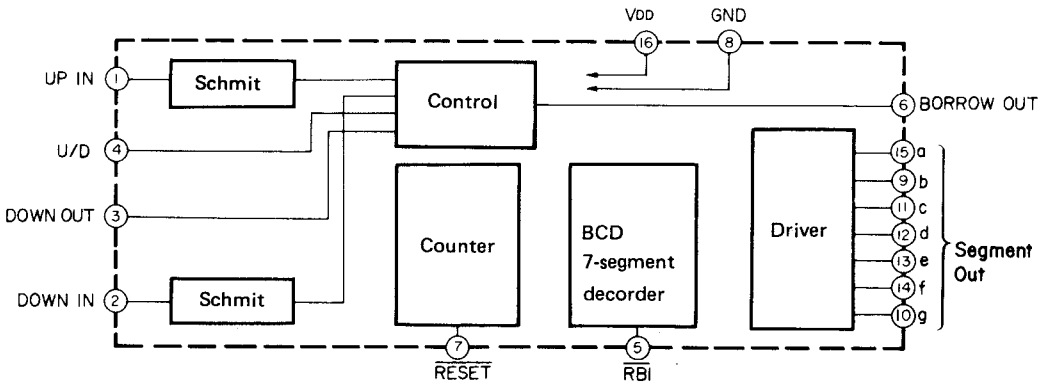
MSM-5953RS

Terminal Connections



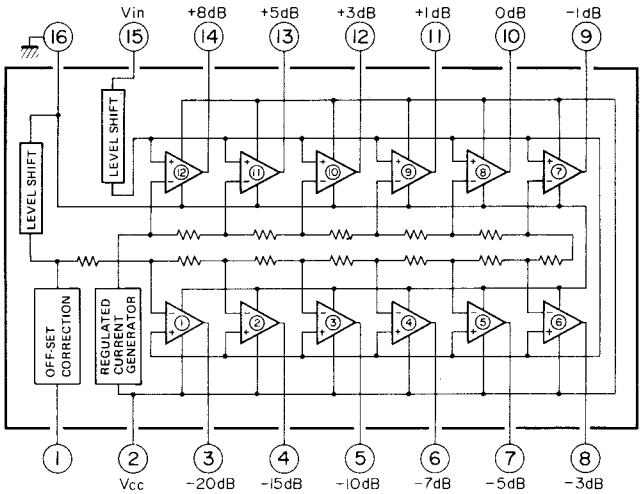
Top View

Circuit Construction



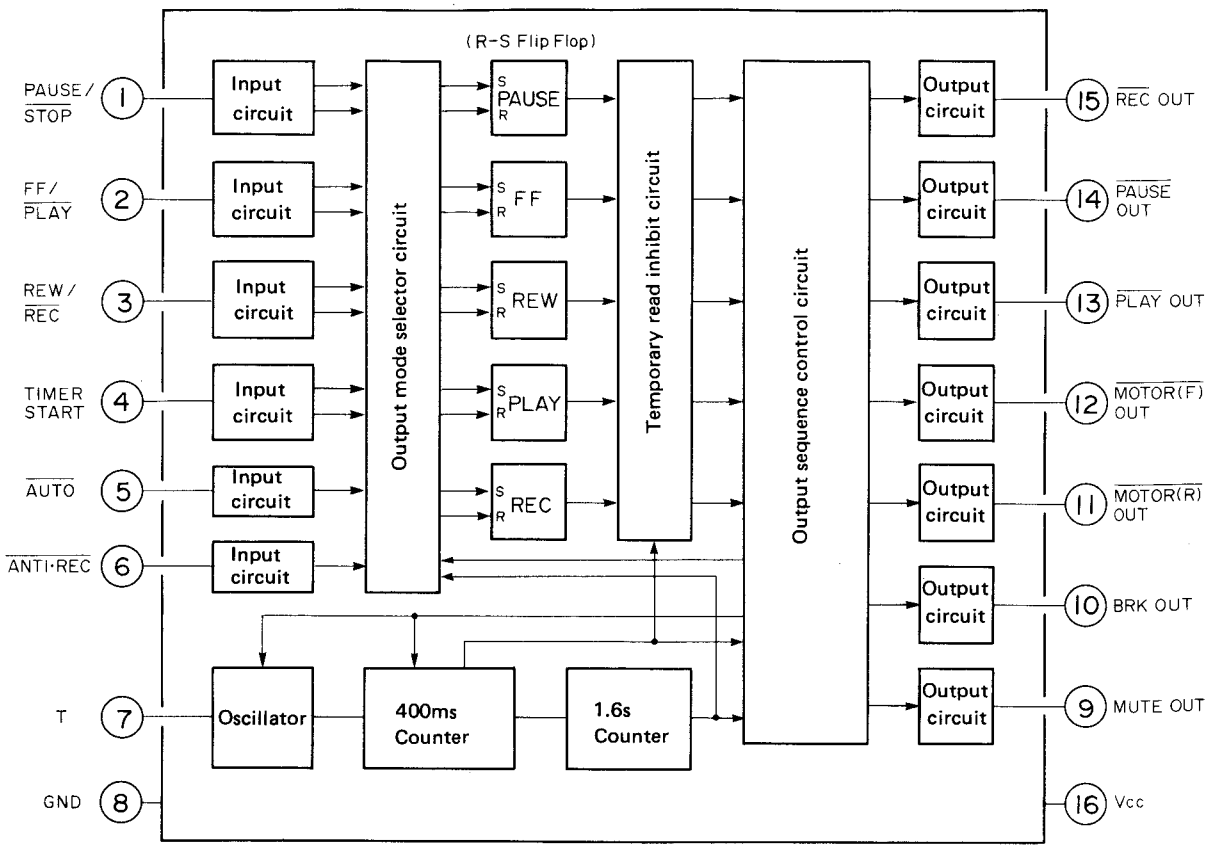
HA12019

Circuit Construction

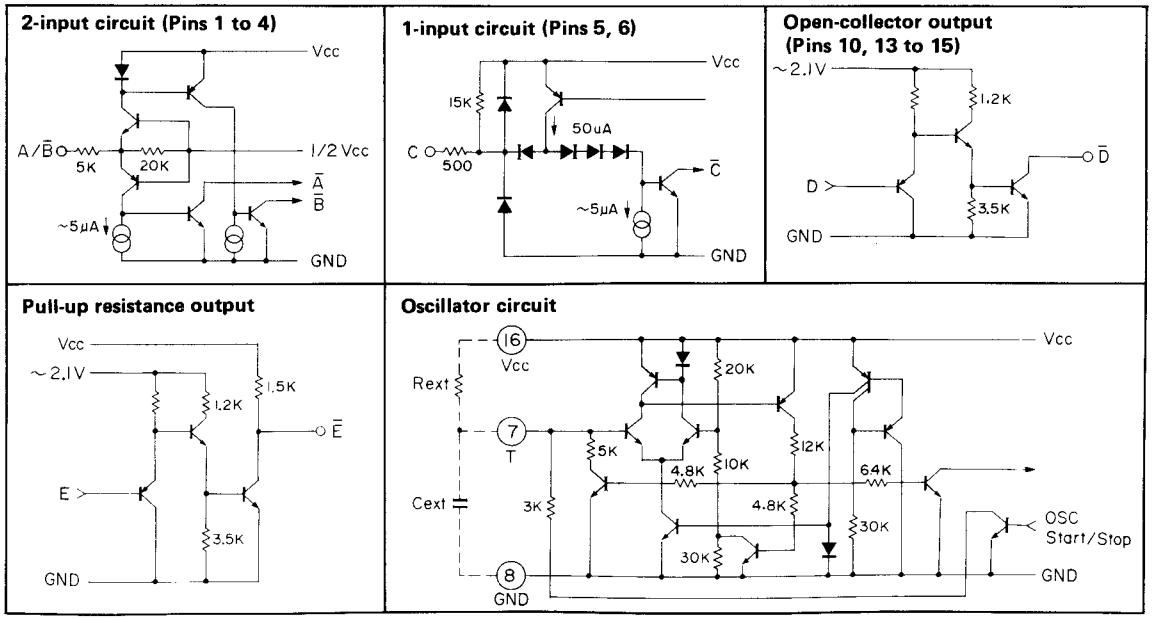


M54886P

Circuit Construction



Input and Output Circuit Diagrams

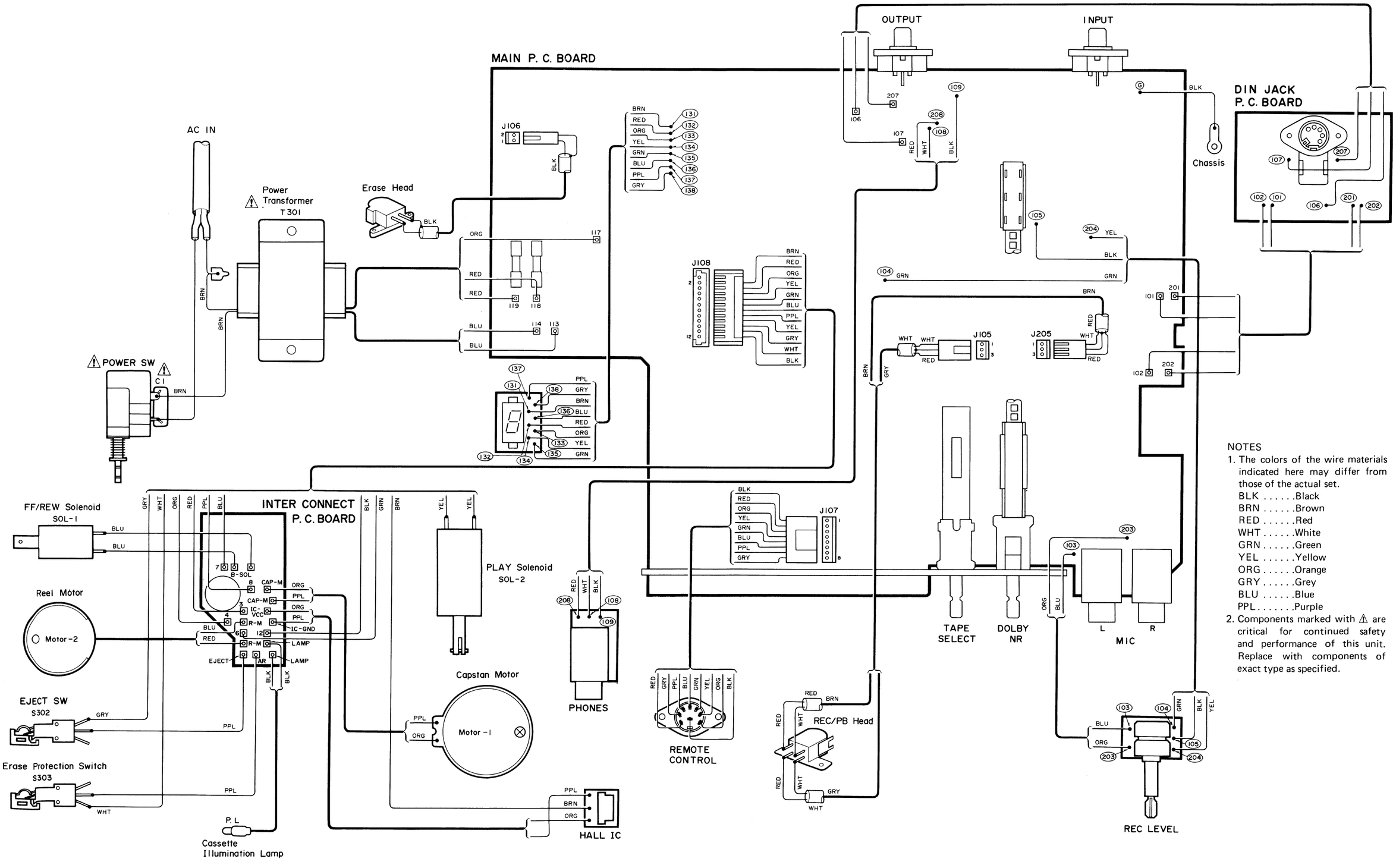


Terminal Description

Terminal No.	Name		Function
1	PAUSE/$\overline{\text{STOP}}$	Operation input	Pause mode selected at "H" level, and stop mode selected at "L" level.
2	FF/$\overline{\text{PLAY}}$	Operation input	Fast forward mode selected at "H" level, and play mode selected at "L" level.
3	RE/$\overline{\text{REC}}$	Operation input	Rewind mode selected at "H" level, and recording mode selected at "L" level. The $\overline{\text{REC}}$ input is valid only when applied together with the PAUSE or $\overline{\text{STOP}}$ input.
4	TIMER START	Operation input	Selection of the operation mode when the power is switched on. Play mode is selected if left at "H" level, recording mode if left at "L" level, and stop mode if left open.
5	$\overline{\text{AUTO}}$	Control input	PLAY ⟶ REW, REW ⟶ PLAY or FF ⟶ STOP mode change instruction is generated by the application of an "L" level pulse (⊓⊔⊓) to this input terminal.
6	$\overline{\text{ANTI REC}}$	Control input	Recording inhibit input terminal. Recording is inhibited when an "L" level signal is applied.
7	T		External resistors and capacitors are connected to this terminal to from the oscillator circuit.
8	GND		Earth

Terminal No.	Name	Function	
9	MUTE OUT	Output	Muting signal output.
10	BRK OUT		Reel disk brake signal output.
11	$\overline{\text{MOTOR(F)}}$ OUT		Reel motor forward drive signal output.
12	$\overline{\text{MOTOR(R)}}$ OUT		Reel motor reverse drive signal output.
13	$\overline{\text{PLAY}}$ OUT		PLAY signal output.
14	$\overline{\text{PAUSE}}$ OUT		PAUSE signal output.
15	$\overline{\text{REC}}$ OUT		Recording signal output.
16	Vcc		Power supply.

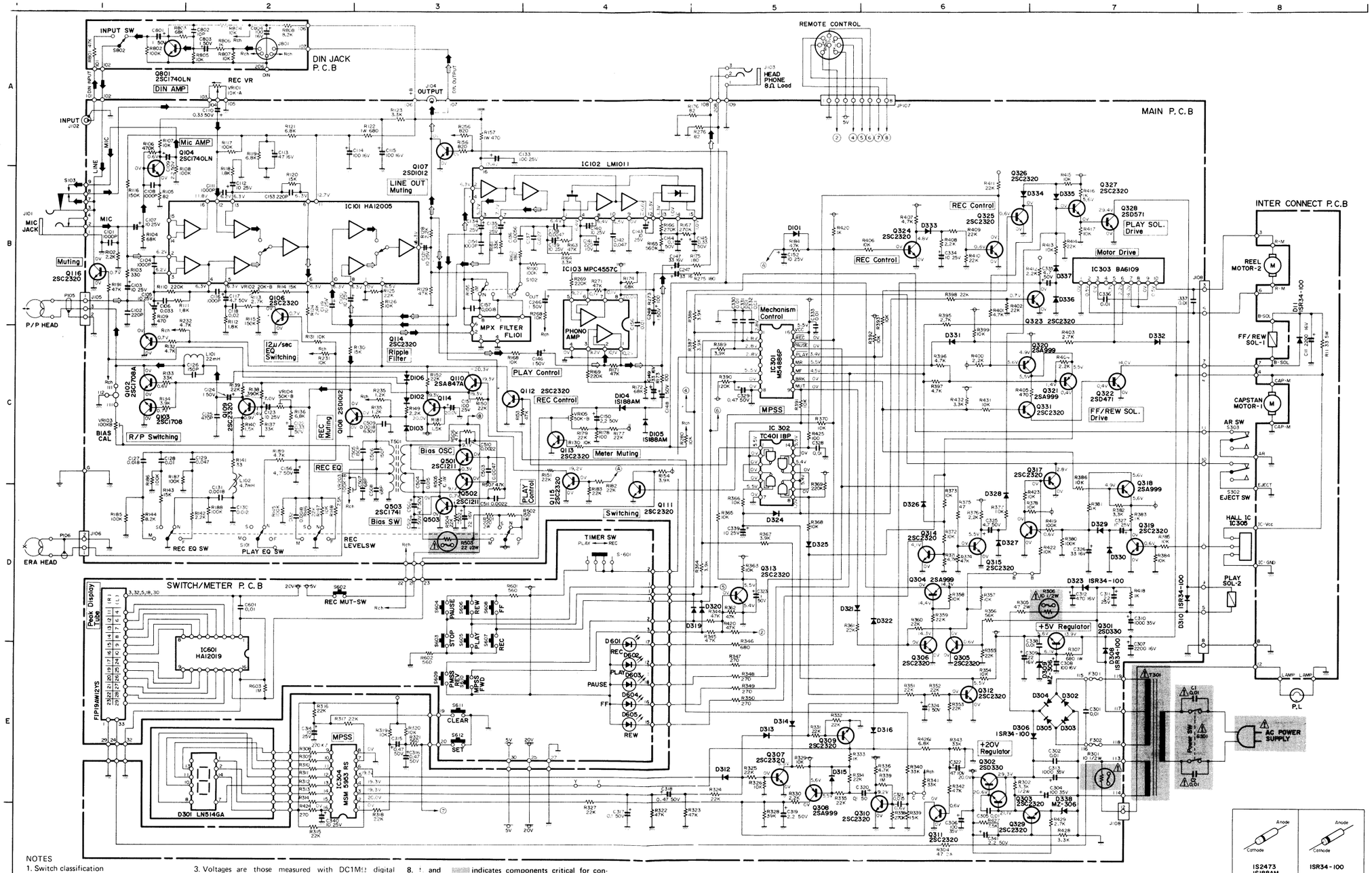
WIRING



NOTES

1. The colors of the wire materials indicated here may differ from those of the actual set.
   BLK .....Black
   BRN .....Brown
   RED .....Red
   WHT .....White
   GRN .....Green
   YEL .....Yellow
   ORG .....Orange
   GRY .....Grey
   BLU .....Blue
   PPL .....Purple
2. Components marked with ⚠ are critical for continued safety and performance of this unit. Replace with components of exact type as specified.

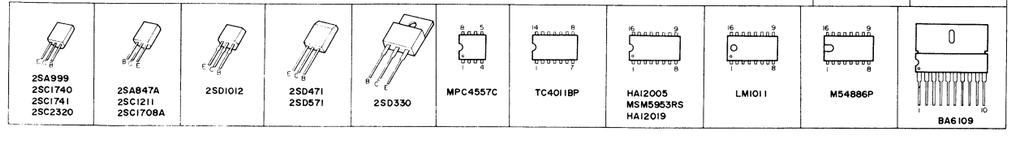
SCHEMATIC DIAGRAM



NOTES

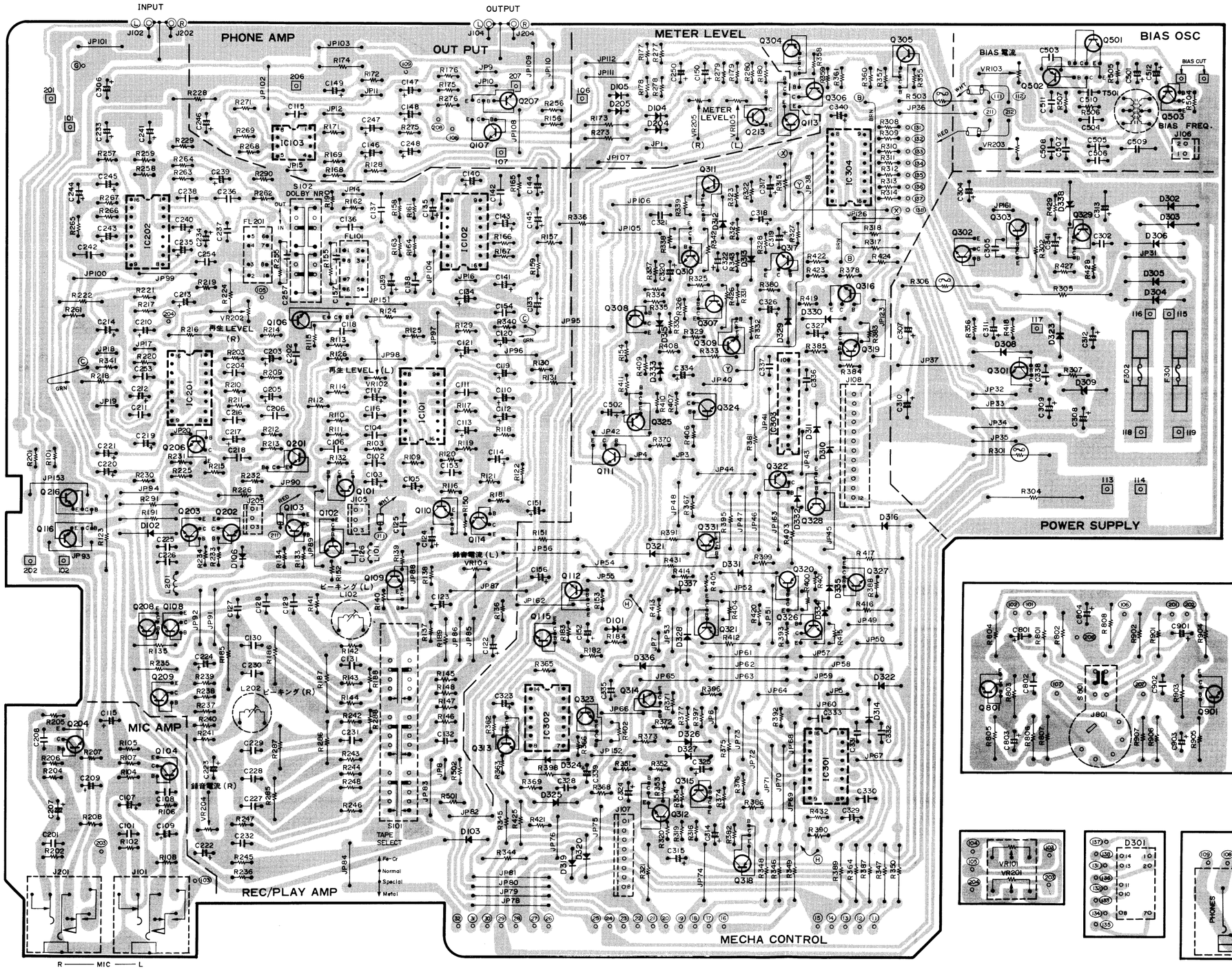
1. Switch classification
   - S101 .....TAPE SELECT : Normal
   - S102 .....DOLBY NR : IN
   - S601 .....TIMER : Off
2. Unit of C and R
   - C.....No symbol : μF
   - p symbol : pF
   - R.....No symbol : Ω
   - K symbol : kΩ
   - M-symbol : MΩ

   Power for all unspecified resistors are 1/4W.
3. Voltages are those measured with DC1MΩ digital voltmeter.
4. (W) Resistors with this mark are for fire hozerd protection, when replace be sure to use only specified resistor.
5. All diodes are 1S2473 otherwise indicated.
6. Signal flow
   - ⇨.....PLAY signal
   - ➡.....REC signal
7. This schematic diagram shows Lch (suffixed 100 order) Rch elements are unshown (suffixed 200 order).
8. ! and ▨ indicates components critical for continued safety and performance of this unit. Replace only with components of exact types as specified.
9. The present circuit ia the standard circuit, which may be improved later.

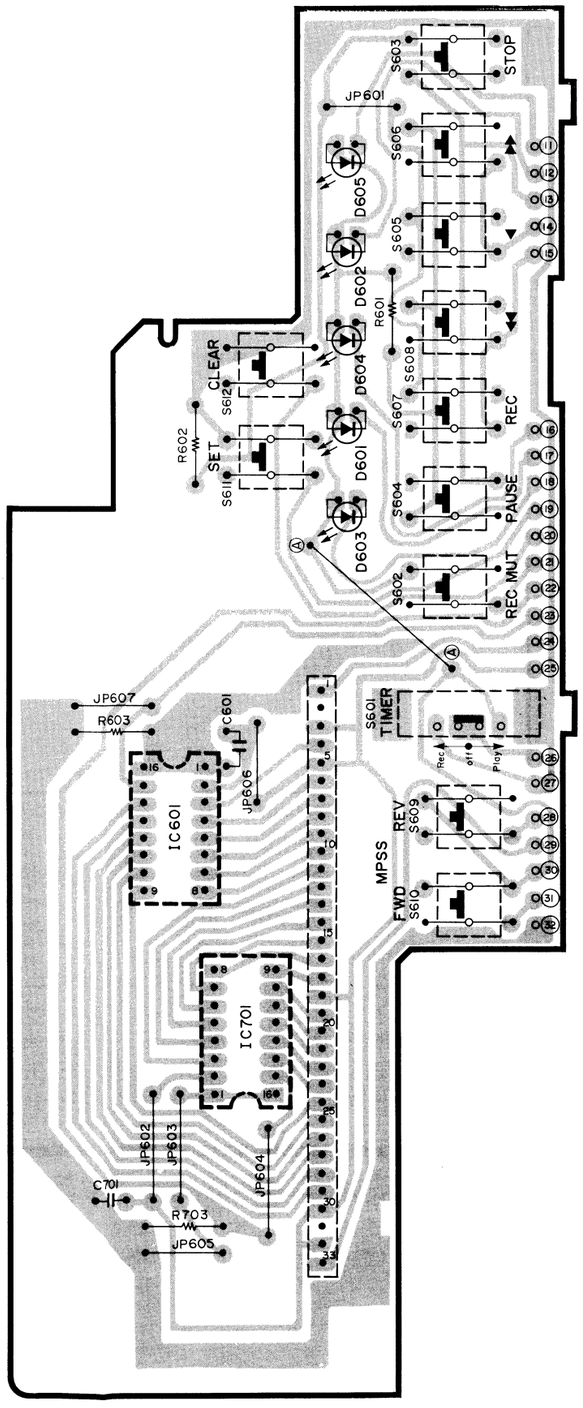


PRINTED CIRCUIT BOARDS

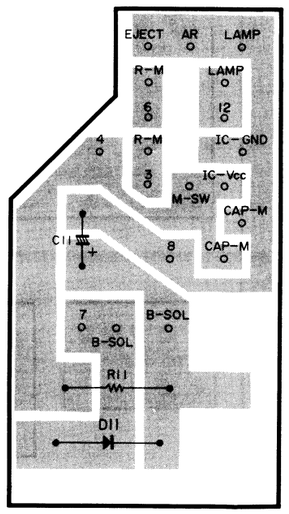
MAIN P.C. BOARD



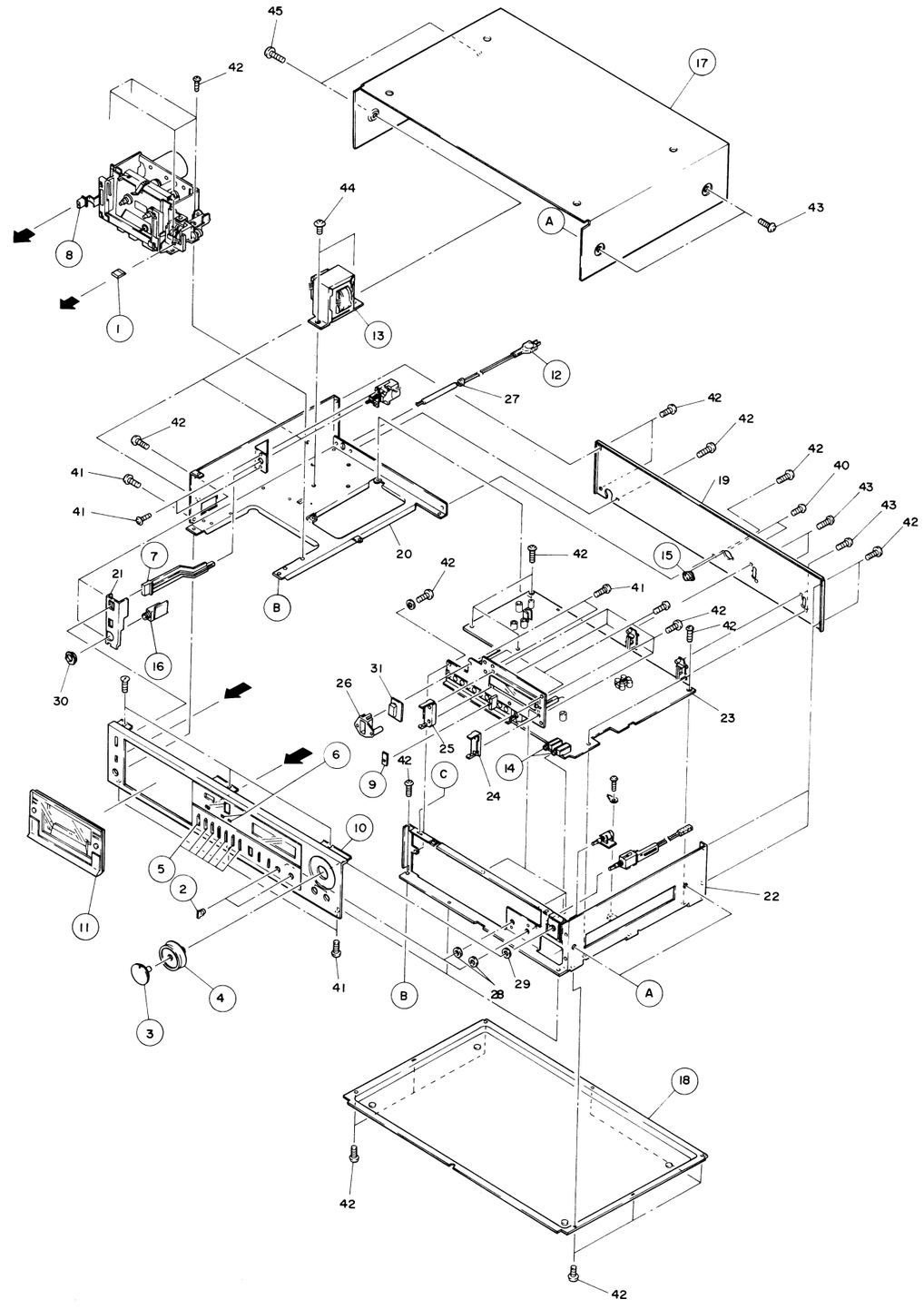
SWITCH/METER P.C. BOARD



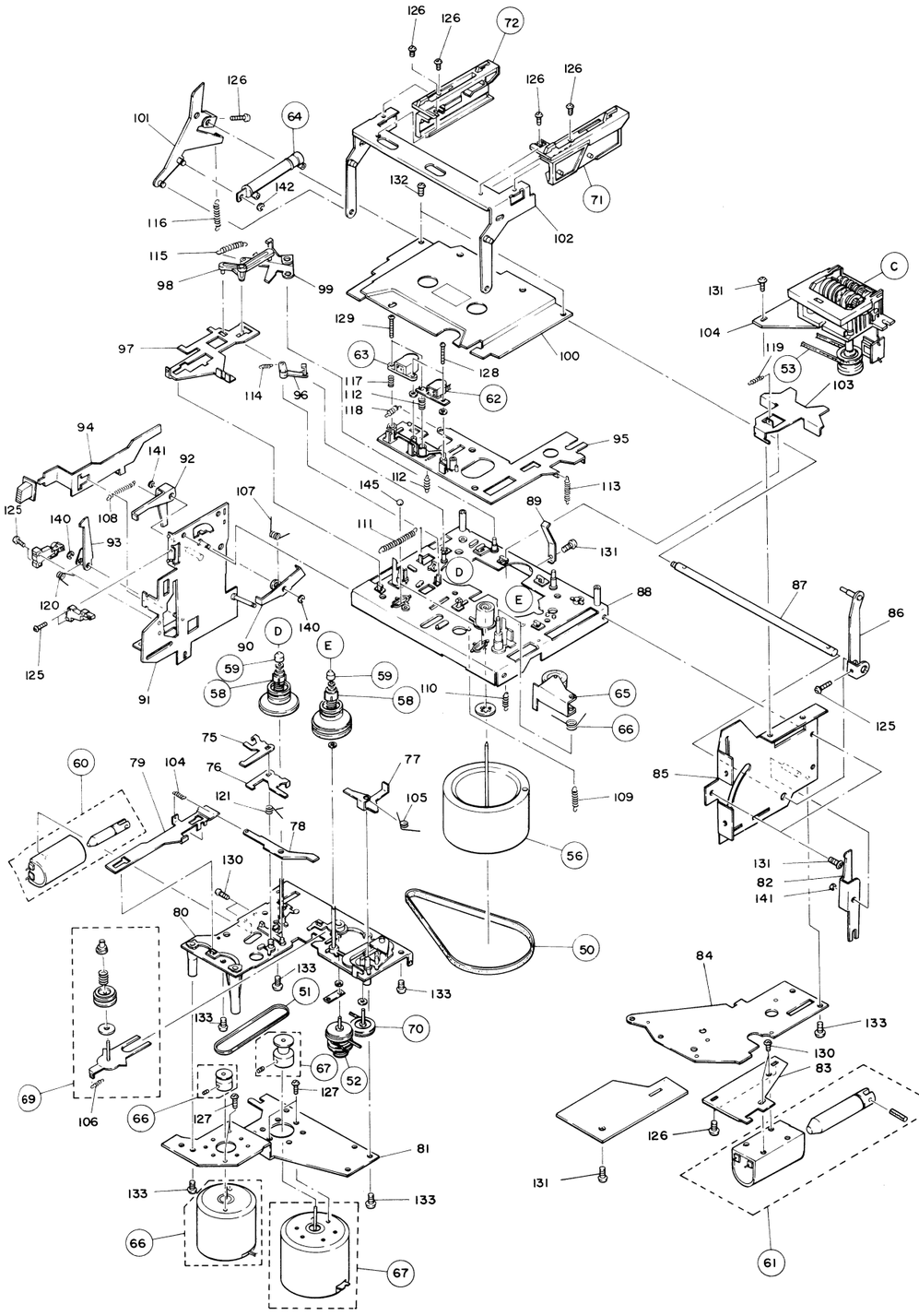
INTER CONNECT P.C. BOARD



EXPLODE VIEW OF CABINET



EXPLODED VIEW OF MECHANISM



MECHANICAL PARTS DESCRIPTION

NOTE: Encircled parts are prepared as a servicing parts.

Symbol No.	Parts No.	Description
		Cabinet
①	M05202120	Knob (Counter)
②	M05202121	Knob (Dolby, Tape Selector)
③	M05209120	Knob (Level)
④	M05209123	Knob (Level)
⑤	M05209122	Knob (Mechanism Operation)
⑥	M05209124	Knob (MPSS)
⑦	M05202126	Knob (Power)
⑧	M05202127	Knob (Eject)
⑨	M05202128	Knob (Timer)
10	U712C205G01	Panel Assy
11		Cassette Cover
⑫	M05200710	Power Cord
⑬	M05209410	Power Transformer
⑭	M07496475	Jack (Mic)
⑮	M05209585	Counter (Remote)
⑯	M05202446	Jack (Phone)
17	U561B066H02	Case (Cabinet-Top)
18	U580B057H03	Base (Cabinet-Bottom)
19	U582B107H04	Back Panel
20		Chassis
21		Holder-U
22		Chassis
23	U241B744G02	Main P.C. Board
24		Holder
25		Holder
26		Holder
27		Clamper
28		Nut M7
29		Nut M9
30		Nut M12
31		MPSS P.C. Board
40		Screw M2.6 x 6
41		Screw M3 x 6
42		T-Screw 2 - 3 x 6
43		T-Screw 1 - 3 x 8
44		Screw M4 x 6
45		Screw M4 x 6
		Mechanical Parts
⑤⓪	M05162550	Belt (Main)
⑤①	M05174550	Belt (FF/REW)
⑤②	M05202550	Belt (END)
⑤③	M05202551	Belt (Counter)
54		
55		Counter
56		Fly Wheel
⑤⑦	M05202526	Reel Rest (Take up)
⑤⑧	M05202527	Reel Rest (Supply)
59		Cap
⑥⓪	M05202390	Solenoid (Brake, FF/REW)
⑥①	M05202391	Solenoid (Play)
⑥②	M05183830	REC/PB Head
⑥③	M05176831	Erase Head
⑥④	M04165625	Damper
⑥⑤	M05202540	Pinch Roller
66		Spring
⑥⑦	M05202500	Motor (Capstan)

Symbol No.	Parts No.	Description
⑥⑧	M05202501	Motor (FF/REW)
⑥⑨	M05202541	Pully Assy
⑦⓪	M05202542	Pully Assy
⑦①	M05163114	Cassette Holder (Right)
⑦②	M05163115	Cassette Holder (Left)
73		–
74		–
75		Lever
76		Lever
77		Lever
78		Lever
79		Link
80		Base
81		Holder
82		Lever
83		Holder
84		Holder
85		Holder
86		Lever
87		Shaft
88		Base-Mechanism
89		Spring
90		Lever
91		Holder-L
92		Lever
93		Lever
94		Link
95		Base
96		Lever
97		Link
98		Lever
99		Lever
100		Cover
101		Link
102		Link
103		Link
104		Spring
105		Spring
106		Spring
107		Spring
108		Spring
109		Spring
110		Spring
111		Spring
112		Spring
113		Spring
114		Spring
115		Spring
116		Spring
117		Spring
118		Spring
119		Spring
120		Spring
121		Spring
122		Spring
123		–
124		–
125		Screw M2 x 8
126		Screw M2.6 x 4
127		Screw M2.6 x 3
128		Screw M2 x 12
129		Screw M2 x 14

Symbol No.	Parts No.	Description	
130		Screw	M3 x 3
131		T-Screw	2 - 3 x 5
132		T-Screw	1 - 2.6 x 5
133		T-Screw	1 - 3 x 6
134		T-Screw	2 - 3 x 6 (Black)
140		E-ring	2.5
141		E-ring	3
142		E-ring	2
143		—	
144		—	
145		Steel Ball	

PARTS LIST

NOTE: ⚠ and ▒▒ marked components on parts list have special characteristics to keep safety performance of this unit. When replacing any of these parts, be sure to use only specified parts.

Symbol No.	Parts No.	Description
		Diodes
D11	M07391320	1SR34-100
D101	M07060320	1S2473VE
D103	M07060320	1S2473VE
D104	M05142320	1S188AM
D105	M05142320	1S188AM
D106	M07060320	1S2473VE
D201	M07060320	1S2473VE
D202	M07060320	1S2473VE
D203	M07060320	1S2473VE
D204	M05142320	1S188AM
D205	M05142320	1S188AM
D206	M07060320	1S2473VE
D301	M05177322	LN514GA
D302	M07060320	1S2473VE
D303	M07060320	1S2473VE
D304	M07060320	1S2473VE
D305	M07060320	1S2473VE
D306	M07391320	1SR34-100
D307		
D308	M07391320	1SR34-100
D309	M07492320	MZ-306
D310	M07391320	1SR34-100
D311		
D312	M07060320	1S2473VE
D313	M07060320	1S2473VE
D314	M07060320	1S2473VE
D315	M07060320	1S2473VE
D316	M07060320	1S2473VE
D317		
D318		
D319	M07060320	1S2473VE
D320	M07060320	1S2473VE
D321	M07060320	1S2473VE
D322	M07060320	
D323	M07391320	1SR34-100
D324	M07060320	1S2473VE
D325	M07060320	1S2473VE
D326	M07060320	1S2473VE
D327	M07060320	1S2473VE
D328	M07060320	1S2473VE
D329	M07060320	1S2473VE
D330	M07060320	1S2473VE
D331	M07060320	1S2473VE
D332	M07060320	1S2473VE
D333	M07060320	1S2473VE
D334	M07060320	1S2473VE
D335	M07060320	1S2473VE
D336	M07060320	1S2473VE
D337	M07060320	1S2473VE
D338	M07492320	MZ-306
D601	M05129321	SLP-114B (Red)
D602	M07357320	SLP-214B (Green
D603	M07357320	SLP-214B (Green)
D604	M07357320	SLP-214B (Green)
D605	M07357320	SLP-214B (Green)

Symbol No.	Parts No.	Description
		ICs
IC101	M05202344	HA12005
IC102	M05155343	LM1011
IC103	M07390344	MPC4557C
IC201	M05202344	HA12005
IC202	M05155343	LM1011
IC203	M07390344	MPC4557C
IC301	M05202345	M54886P
IC302	M07297343	TC4011BP
IC303	M07527343	BA6109
IC304	M05177343	MSM5953RS
IC305		Hall IC
IC601	M05202343	HA12019
		Transistors
Q101	M07390303	2SC2320
Q102	M07113310	2SC1708A
Q103	M07113310	2SC1708A
Q104	M07387303	2SC1740LN
Q105		
Q106	M07390303	2SC2320
Q107	M07454303	2SD1012
Q108	M07454303	2SD1012
Q109	M07390303	2SC2320
Q110	M07140303	2SA847A
Q111	M07390303	2SC2320
Q112	M07390303	2SC2320
Q113	M07390303	2SC2320
Q114	M07390303	2SC2320
Q115	M07390303	2SC2320
Q116	M07390303	2SC2320
Q201	M07390303	2SC2320
Q202	M07113310	2SC1708A
Q203	M07113310	2SC1708A
Q204	M07387303	2SC1740LN
Q205		
Q206	M07390303	2SC2320
Q207	M07454303	2SD1012
Q208	M07454303	2SD1012
Q209	M07390303	2SC2320
Q210	M07140303	2SA847A
Q211	M07390303	2SC2320
Q212	M07390303	2SC2320
Q213	M07390303	2SC2320
Q214	M07390303	2SC2320
Q215	M07390303	2SC2320
Q216	M07390303	2SC2320
Q301	M07061304	2SD330
Q302	M07061304	2SD330
Q303	M07390303	2SC2320
Q304	M07390304	2SA999
Q305	M07390303	2SC2320
Q306	M07390303	2SC2320
Q307	M07390303	2SC2320
Q308	M07390304	2SA999
Q309	M07390303	2SC2320
Q310	M07390303	2SC2320
Q311	M07390303	2SC2320

Symbol No.	Parts No.	Description
Q312	M07390303	2SC2320
Q313	M07390303	2SC2320
Q314	M07390303	2SC2320
Q315	M07390303	2SC2320
Q316	M07390303	2SC2320
Q317	M07390303	2SC2320
Q318	M07390304	2SA999
Q319	M07390303	2SC2320
Q320	M07390304	2SA999
Q321	M07390304	2SA999
Q322	M05147311	2SD471
Q323	M07390303	2SC2320
Q324	M07390303	2SC2320
Q325	M07390303	2SC2320
Q326	M07390303	2SC2320
Q327	M07390303	2SC2320
Q328	M07228303	2SD571
Q501	M07071307	2SC1211
Q502	M07071307	2SC1211
Q503	M07071307	2SC1211
Q801	M07387303	2SC1740LN
Q901	M07387303	2SC1740LN
Electrical Parts		
C307	M05209370	C-Elect-16V 2200μF
C310	M07502360	C-Elect-35V 1000μF
C313	M07502360	C-Elect-35V 1000μF
C509	M05184370	C-PP-630V 0.0018μF-J
F301	M07352490	Fuse-1A ⚠
F302	M07352490	Fuse-1A ⚠
FL101	M05184480	MPX Filter
FL201	M05184480	MPX Filter
	M05183830	Head (REC/PB)
	M05176831	Head (Erase)
J101	M07496475	Jack (Mic)
J103	M05202446	Jack (Phones)
J201	M07496475	Jack (Mic)
J801	M05175585	Connector (DIN)
	M05209585	Connector (Remote Control)
L101	M05209420	Coil-22mH-J
L102	M05110420	Coil-4.7mH-J
L201	M05209420	Coil-22mH-J
L202	M05110420	Coil-4.7mH-J
	M05202501	Motor-Assy (FF/REW)
	M05202500	Motor-Assy (Capstan)
PL	M05202490	Lamp
R301	M07133420	R-Fuse-1/2W 10kΩ ⚠
R306	M07133420	R-Fuse-1/2W 10kΩ ⚠
R503	M07139411	R-Fuse-1/2W 22kΩ ⚠
S101	M05202433	SW-Rotaly (Tape Select)
S102-a	M05202430	SW-Rotaly (Dolby NR)
S102-c	M05202431	SW-Rotaly (Dolby NR)
S102-b	M05202432	SW-Rotaly (Dolby NR)

Symbol No.	Parts No.	Description
S302	M05202435	SW-Micro (Eject)
S303	M05202435	SW-Micro (AR)
S601	M05202434	SW-Slide (Timer)
S602	M07520454	SW-Push (Rec Mute)
S603	M07520454	SW-Push (Stop)
S604	M07520454	SW-Push (Pause)
S605	M07520454	SW-Push (Play)
S606	M07520454	SW-Push (Rew)
S607	M07520454	SW-Push (Rec)
S608	M07520454	SW-Push (FF)
SOL1	M05202390	Solenoid (FF/REW)
SOL2	M05202391	Solenoid (Capstan)
T301	M05209410	Trans (Power) ⚠
T501	M05209421	Coil (OSC)
	M05202400	Tube-FL
VR101	M05200352	VR-W-A10K25
VR102	M05175360	VR-Semi-B20K
VR103	M05175362	VR-Semi-B100K
VR104	M05175361	VR-Semi-B50K
VR105	M05175361	VR-Semi-B50K
VR201	M05200352	VR-W-A10K25
VR202	M05175360	VR-Semi-B20K
VR203	M05175362	VR-Semi-B100K
VR204	M05175361	VR-Semi-B50K
VR205	M05175361	VR-Semi-B50K
Packing		
	U800B094H22	Packing Box
	U831D318H02	Packing Bag
	U813B125H02	Cushion Mold
	U813B126H02	Cushion Mold
	U871C008H32	Instruction Book

PACKING INSTRUCTION